Declaration of Co-Inventor Jack K. Holmes

I, Jack K. Holmes, co-inventor to the present application, do hereby declare and state:

1) Figure 1 clearly shows that by uniphase modulation it is meant that one and the same carrier phase is modulated, either the inphase phase of the carrier or the quadrature phase of the carrier, but not both. More complex methods of modulation, such as quadrature modulation, are referred to by such more complex terms, such as quadrature modulation with I and Q designations. The term uniphase modulation is used to merely distinguish simple singular phase modulation from other forms of modulation, such as quadrature modulation. In view of the specification, uniphase modulation is used and described as no other interpretation is REMOTELY possible. It is so abundantly clear that stating the obvious or deriving a suitable word for uniphase modulation was not even considered, nor should it be, because in the art, uniphase modulation is always the basic form of modulation, and without more, is always presumed. The term "uniphase" is used now merely to distinguish the uniphase modulation of the present invention, as an accurate term, from the I & Q quadrature modulation of the Raghavan, the cited reference. The term uniphase does accurately distinguish simple singular phase modulation from quadriphase modulation. Quadriphase modulation can be viewed as being constructed from two uniphase signals that are 90 degrees apart in carrier phase. In other words, uniphase signals are placed on only one of the two possible carrier phase axis'. When quadriphase signals are utilized both axes' are used.

2) The Figure 1 shows user data 12 and 28, clock generators 16 and 32, and CDMA code generators 18 and 34. By definition, user data and codes are digital streams. Digital user data, CDMA codes, and clocks clocking the same, are all digital signal streams, to which there cannot possibly be any doubt, even by those of no skill in the art.

3) Figure 1 then shows formatters 14, 20, 30, and 36 clocked by clock generators 16 and 32, which formatters 14, 20, 30, and 36 format digital data streams producing formatted digital data streams. By definition, NRZ formatting and Staggered Manchester formatting are digital formatting of digital inputs providing formatted digital data streams at the output of the formatters 14, 20, 30, and 36, to which there cannot possibly be any doubt, even by those of no skill in the art. The specification teaches that "The first shifted user data is nonreturn to zero (NRZ) formatted by a first NRZ data formatter 14 for providing first NRZ formatted data".

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4) Figure 1 then shows mixers 22 and 38 each mixing together two formatted data streams for respectively providing, as clearly shown, mixer outputs, each of which are shown as single lines, indicating one signal. The mixing of two data streams by a mixer by definition produces an output digital data signal, to which there cannot possibly be any doubt, even by those of no skill in the art. The specification teaches that "The NRZ formatted spreading code modulates the first NRZ formatted data using a first spreading mixer 22 for providing a NRZ spread spectrum signal to a first modulator 24". A spread spectrum signal is by definition prior to modulation a digital signal. The specification teaches that "The first set of modulators 24 and the second set of modulators 40 provide respective NRZ spectrum spread signals and staggered Manchester spectrum spread signals to a transmitter combiner 42 for combining the NRZ formatted spectrum spread signals and staggered Manchester spectrum spread signals into a composite spectrum signals having a dual spectrum." Mere combining, amplification, and transmission, without more, does not change the spectral nature or phasing of the modulated signals generated, as is also well known in the art.

5) Figures 1 then shows the mixers 22 and 38 feeding the respectively mixer outputs to modulators 24 and 40. The modulators are adequately described in the specification. The specification teaches synchronized modulation of a carrier. Synchronized modulation means that the carrier and digital spread spectrum signals are synchronized as to phase, to which there cannot possibly be any doubt to those of skilled in the art. The

specification teaches that "The modulators 24 and 40 modulate the spread spectrum signals by a carrier signal having a carrier frequency". As is well known, a carrier can be modulated by a digital signal. The specification teaches that the spread spectrum signals, which are known and shown to be in the digital domain, can modulate the carrier. When a single, one and only one, input digital signal is used to modulate a single, one and only one, carrier, the carrier can ONLY BE UNIPHASE modulated, because, by definition only one input signal is used.

6) Such single-input modulation of a single carrier can be and has been accurately characterized simply as "modulation" in its simplest and very well known most rudimentary form, and can be characterized as "uniphase" modulation to more particularly distinguish this simplest form of modulation from a vast array of other forms of more complicated modulations. When there is only one modulating digital input signal modulating only one carrier, the modulation can only be uniphase where the prefix "uni" indicates the "one" singular input and one carrier phase. There are of course a vast array of more complicated modulation methods, where additional processing steps and signals are used for modulating a carrier. For example, as in Raghavan, the primary cited reference, quadriphase modulation is used where two input signals, operating 90 degrees apart relative to a carrier, are used to modulate a carrier in quadrature phases. The simplest example is where a signal is split into two equal signals, but one of which is phase shifted 90 degrees, in quadrature, that is, phase shifted in quadrature by 1/4 of a carrier rotation in a carrier cycle. The

original signal may be considered an "inphase" I signal and the phase shifted signal may be considered a "quadrature" Q signal. These two I and Q quadrature signals are combined as the composite I and Q "quadrature signal" that is then used to modulate a carrier in quadrature. This I and Q quadrature modulation can be call quadrature modulation or quadriphase modulation.

7) In order to demodulate signal, as is conventional practice, the receiver must employ a demodulation method upon reception so as to remove the modulation so as to capture the digital data stream. Where a modulation method is used upon transmission, an inverse like demodulation method is used upon reception. Where "uniphase" modulation is used upon transmission, "uniphase" demodulation is used upon reception. Likewise, where "quadriphase" modulation is used upon transmission, "quadriphase" demodulation is used upon reception. Figure 2 shows the received signal being demodulated by the formatter 58 providing a digital data stream to a mixer 52 for despreading as an inverse to the spreading prior to carrier modulation. Next, the despread signal is then carrier demodulated by mixer 62. There is no means for nor any reference to quadrature demodulation. Likewise, in quadrature as shown in Raghavan Figure 1A, there are I and Q modulators 18 and 20 modulating two respective signals in quadrature upon transmission. Upon reception, there are I and Q despreading mixers 54 and 56, and there are carrier demodulating mixers 72 and 74 for demodulating the carrier in quadrature. Demodulating in quadrature is the inverse function to modulating in quadrature upon transmission.

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8) There is no doubt as to what is shown and was intended by the present invention and equally by Raghavan. The question seems to be what language or terms should be used to distinguish the present invention from Raghavan. The term "uniphase" is accurate and can be used to accurately distinguish the present invention from the prior art I and Q "quadriphase" modulation in Raghavan. This uniphase modulation would be readily understood and apparent to anyone skilled in the art.

9) I hereby declare that all statements made herein are of my own knowledge and are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date:June, 2, 2008

Dr Jack K Holmes

Dr. Jack K. Holmes

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